Title: Multi-User Communications with Outdated Channel State Information: Overview and Recent Results

Speaker:
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Abstract:
Transmission schemes in current multi-user MIMO systems hinge on the accuracy and timeliness of the channel state information at the transmitter side (CSIT). In this talk, we present a few simple scenarios to show how to exploit the outdated channel state information (delayed CSIT) in wireless networks and achieve the optimal degrees of freedom. The high-level presentation aims at providing some insights on the space-time interference alignment in a strictly causal way. Finally, if time permits, we will give an example showing the finite SNR performance and a constant gap to the capacity in some cases.

Biography of the speaker:
Sheng Yang received the B.E. degree in electrical engineering from Jiaotong University, Shanghai, China, in 2001, and both the engineer degree and the M.Sc. degree in electrical engineering from École Nationale Supérieure des Télécommunications (currently TelecomParisTech), Paris, France, in 2004, respectively. From 2004 to 2007, he worked as teaching and research assistant in the Communications and Electronics department in ENST. During the same period, he completed his Ph.D., graduating in 2007 from Université de Pierre et Marie Curie(Paris VI). From October 2007 to November 2008, he was with Motorola Research Center in Gif-sur-Yvette, France, as a senior staff research engineer. Since December 2008, he has joined the Telecommunications department at CentraleSupelec(formerly Supelec) where he is currently an assistant professor. His research
interests include space-time coding/decoding techniques, cooperative diversity schemes, physical layer security and wireless networks information theory. He has also worked on several aspects, such as the multi-user MIMO transmission strategies and interference mitigation solutions, within the framework of IEEE 802.16m and LTE advanced.

Organizer: Dr. K.B. Huang & Prof. V.O.K. Li